IL'YASOV, A. T.

Hydrologic regionalization of Kirghizistan. Izv. Kir. fil. Geog. ob-va SSSR no.3:137-147 '62. (MIRA 15:10)

(Kirghizistan—Hydrology)

IL'YASOV, A.T.

L.S.Berg as a hydrologist. Izv. Kir. fil. Geog. ob-va SSSR no.4: 39-43 '63.

Ground regulation of the Chu River runoff. Izv. Kir. fil. Geog. ob-va SSSR no.4:69-75 '63. (MIRA 16:12)

00213

S/126/60/009/04/004/033
E032/E435

18.1200
18.8100

AUTHORS: Garif'yanov, N.S. and Il'yasov, A.V.

TITLE: Magnetic Resonance in Sodium Alloys

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 4, pp 503-506 (USSR)

ABSTRACT: Measurements are reported of the electron paramagnetic resonance in sodium and cesium alloys. The measurements were carried out on 300 and 9430 Mc/s at 295 and 90°K. The specimens were prepared in an argon atmosphere. In order to prevent the distortion of the lines due to the incomplete penetration of the high frequency field, the alloy was dispersed in paraffin, the particles being 4 μ in diameter (on the average). The sodium was 99.95% pure and contained about 0.04% of potassium. The width ΔH in the original sodium, measured as full width at half height, was 16 oe at 295°K and 9 oe at 90°K (Fig 1). These results are in agreement with those reported by Feher and Kip (Ref 3) and Gutowsky and Frank (Ref 4). Measurements on 300 Mc/s showed that ΔH for the electron paramagnetic resonance curve for Na-Cs is independent of the

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Magnetic Resonance in Sodium Alloys

concentration of cesium up to 0.5 at %. This is indicated in Fig 2. This result is in good agreement with Elliott's theory (Ref 5). Fig 3 shows the full width at half height of the electron paramagnetic resonance curve for different concentrations of sodium and cesium. Measurements have also been made of the nuclear magnetic resonance in sodium alloys. The alloys investigated were Na-K, Na-Hg, and Na-Cs. The ratio of the Knight shift ΔH to the resonance value of the magnetic field H were measured. The results obtained are as follows:

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E032/E435

Magnetic Resonance in Sodium Alloys

The Knight shift in sodium alloys (without correction for the chemical shift)

Alloy	Concentration of atoms in the alloy, %		ΔH/H, %
	Na	K	
Na-K	100	0	0.1161
	99.4	0.6	0.1160
	93.8	6.2	0.1213
	63	37	0.1287
	36	64	0.1450
	Na	Hg	
Na-Hg	97.2	2.8	0.1142
	89.7	10.3	0.1122
	85.9	14.1	0.1131
	83.0	17.0	0.1149
	81.0	19.0	0.1121

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B021J

S/126/60/009/04/004/033
E032/E435

Magnetic Resonance in Sodium Alloys

Na-Hg	79	21	0.1152
	77	23	0.1138
	75	25	0.1157
	70	30	0.1151

	Na	Cs	
Na-Cs	99.7	0.3	0.1125
	99.5	0.5	0.1128
	99.4	0.6	0.1124
	99.1	0.9	0.1152
	98.7	1.3	0.1129
	94.2	5.8	0.1288

Card 4/5

80213

S/126/60/009/04/004/033
E032/E435

Magnetic Resonance in Sodium Alloys

There are 3 figures, 1 table and 11 references, 4 of which are Soviet and 7 English.

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR
(Physico-Technical Institute of the Kazan Branch AS USSR)

SUBMITTED: July 13, 1959

Card 5/5

4

IL'YASOV, A.V.; GARIF'YANOV, N.S.; RYZHMANOV, Yu.M.

Paramagnetic electron resonance in some types of natural crude and in its heavy fractions. Khim.i tekh.topl.i masel 6 no.1:28-31 Ja '61. (MIRA 14:1)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR i Institut organicheskoy khimii AN SSSR.
(Petroleum--Spectra)

S/057/61/031/006/008/019
B116/B203

24,7900(1144,1147,1163)

AUTHORS: Garif'yanov, N. S., Il'yasov, A. V., and Ryzhmanov, Yu. M.

TITLE: Electron paramagnetic resonance in some types of soot

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 6, 1961, 694-698

TEXT: The authors studied the electron paramagnetic resonance (EPR) in various heat-treated types of soot at frequencies of ν_1 = 300 and ν_2 = 9450 Mc/sec in the temperature range of -193 to 300°C. They determined the relaxation times for gas conduit soot by the saturation method at 300 Mc/sec according to ГОСТ 785-49 гр 598 (GOST 785-49 column 598) as dependent on the temperature of the sample and the heat treatment. The measuring method used had been described earlier by N. S. Garif'yanov and B. M. Kozyrev (Ref. 3: ZhETF, 30, 272, 1956). The heat treatment consisted in heating to a certain temperature (maximum temperature 1200°C) without air access, with a holding time of 1 hr. The heat-treated soot was wetted with vaseline oil to eliminate the distortions on the EPR line at ν_2 and to obtain equal saturations of these lines on the whole sample

at ν_1. The samples were heated to 140°C (after heat treatment) without additional air removal by suction to eliminate the adsorbed molecular oxygen. The authors investigated by the EPR method: furnace soot, gas conduit soot, and nozzle soot. Measurements were made in "oil" samples with sucked-off air at ν_1 = 300 and ν_2 = 9450 Mc/sec, and at -193, 20, and 300°C. A measurable effect was only observed with gas conduit soot. Results are tabulated. The authors found a strong dependence of the resonance line width ΔH on the temperature of heat treatment, and a weaker dependence on the temperature of the sample and on ν. For all gas conduit soot samples, the splitting factor g was 2.003. The EPR curves show a Lorentz shape. The higher the heat treatment temperature and the temperature of the sample, the less the lines show saturation. The spin-lattice relaxation time T_1 and the spin-spin relaxation time T_2 were determined at ν_1 by means of the saturation method for gas conduit soot samples from which the oxygen had been removed (Table 2). The strong concentration of paramagnetic centers, the equality of relaxation times ($T_1 \approx T_2$), and the small line width in samples of gas conduit soot (in

heat treatment up to 900°C) suggest an exchange interaction between unpaired electrons. Evidently, the exchange is maintained also with a change in the temperature of the sample from -193 to 300°C, since also here $T_1 \approx T_2$. The Lorentz shape of the EPR curves also suggests an exchange interaction between paramagnetic centers. R. L. Collins, M. D. Bell and G. Kraus (Ref. 1: J. appl. phys., 30, 56, 1959) attempted to explain the rapid change of ΔH with increasing heat-treatment temperature up to 900-1000°C by the strong anisotropy of the g-factor. For anisotropic lines, the width of ΔH must depend very strongly on the frequency. The ΔH measured (Table 1)(at ν_1 and ν_2 differing by a factor of 30) differ only slightly. The data obtained confirm the assumption by J. Uebersfeld (Ref. 2: Ann. Phys., 13, 391, 1956). They explain the widening of the line by the reduction of T_1 due to the collision of unpaired electron with carriers. The fact that no EPR were found with furnace soot and nozzle soot is explained by the circumstance that these types of soot are subjected to heating up to about 1200°C already during their formation. The temperature dependences of the lines in the gas conduit soot samples

have not been explained so far. The presence of the adsorbed oxygen in ordinary and in heat-treated gas conduit soot samples reduces the relaxation times T_1 and T_2. The air is sucked off with difficulty from gas conduit soot samples exposed to air for a long time; therefore, the EPR line is wider in such samples as compared with fresh samples. There are 1 figure, 2 tables, and 9 references: 5 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: N. Bloembergen, S. Wang. Phys. Rev., 93, 72, 1954; J.Uebersfeld and E. Erb. J. Chem. Phys., 51, 328, 1954.

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR i Institut organicheskoy khimii AN SSSR Kazan' (Physico-technical Institute of the Kazan' Branch of the AS USSR and Institute of Organic Chemistry of the AS USSR Kazan')

SUBMITTED: February 19, 1960

ARBUZOV, B.A.; KATAYEVA, L.M.; KATAYEV, Ye.G.; IL'YASOV, A.V.

Electron paramagnetic resonance studies of the dissociation of di-(2,4,6-triphenyl)phenyl peroxide and di-(2,4,6-triphenyl) phenyldiselenide to free radicals. Izv. AN SSSR Otd.khim. nauk no.2:360-362 F '62. (MIRA 15:2)

1. Kazanskiy gosudarstvennyy universitet im. V.I.Ul'yanova-Lenina i Kazanskiy filial AN SSSR.
(Radicals(Chemistry))

IL'YASOV, A.V.

Effect of solvent on the electron paramagnetic resonance spectrum of some free radicals. Zhur.strukt.khim. 3 no.1:95-97 Ja-F '62. (MIRA 15:3)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR.
(Radicals (Chemistry)--Spectra) (Solvents)

S/020/62/144/003/027/030
B124/B101

AUTHORS: Valitova, F. G., and Il'yasov, A. V.

TITLE: The electron paramagnetic resonance in concentrated α,α-diphenyl-β-picrylhydrazyl solutions

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 3, 1962, 600-601

TEXT: The dependence of the relaxation time T_1 and T_2 on concentration was determined by continuous saturation at a frequency ν = 460 Mc/sec in α,α-diphenyl-β-picrylhydrazyl solutions in benzene, toluene, and chloroform for concentration between 0.17 and 0.025 moles/liter at temperatures between 240 and 320°K. There is only a single paramagnetic absorption line with a distance of 4.3 oe between the inflection points which corresponds to the maximum concentration. The ratio $\langle \Delta H^4 \rangle^{1/4} \langle \Delta H^2 \rangle^{1/2}$ of 1.38 is indicative of a Lorenz-type absorption curve. When the concentration C is 0.025 moles/liter, exchange interactions become so small that the hyperfine structure characteristics reappear. T_2 is calculated from the relation $T_2 = 1/\pi\sqrt{3}\delta\nu$, where $\delta\nu$ is the line

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The electron paramagnetic ...

width in frequency units, whereas T_1 is calculated from the saturation equation $Z = (1 + 0.25\gamma^2 H_\nu^2 T_1 T_2)^{-1}$, where Z is the saturation coefficient, γ is the gyromagnetic ratio, and H_ν is the amplitude of the high-frequency magnetic field. Relaxation time is found to be independent of the type of solvent used. The same order of magnitude of T_1 and T_2 for concentrations of 0.17 moles/liter is indicative of a strong interaction exchange. T_1 increases as compared to T_2 in less concentrated solutions, and both become dependent on temperature. The heat-accumulator model developed by N. Bloembergen and S. Wang is used to interpret the results obtained. In the solution where the concentration is highest and the interaction exchange is large, the energy absorbed by the Zeeman system is transferred to the exchange system with the relaxation time $T_1 \sim T_2$, where T_1 is the spin-lattice relaxation time and T_2 the spin-spin relaxation time. The fact that the relaxation time is independent of temperature shows that it is not related to the Brownian motion of the paramagnetic molecules. On dilution, exchange is reduced and relaxation due to the Brownian motion of radical molecules increases. It is also found that the exchange frequency

$\omega_e \geq 10^{10}$ sec^{-1}. There are 1 figure and 1 table. The most important English-language reference is: N. Bloembergen, S. Wang, Phys. Rev., 93, 72 (1954).

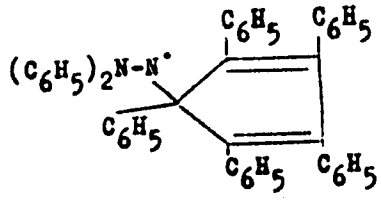
ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala Akademii nauk SSSR (Physicotechnical Institute of the Kazan' Branch of the Academy of Sciences USSR)

PRESENTED: January 26, 1962, by A. Ye. Arbuzov, Academician

SUBMITTED: January 24, 1962

S/020/62/147/001/015/022
B106/B101

Study of the free radical ...



(I). Data for the radical: yield 70-80%; small bright-orange crystals with a melting point >180°C (decomposition); soluble in benzene, chloroform, alcohol, acetonitrile, glacial acetic acid and dioxane. In dilute solutions (< 10^{-3} moles/l), the spectra show a hyperfine structure, the analysis of which proves that the unpaired electron in I remains mainly on the nitrogen atoms. A comparison of the e.p.r. spectrum of I with the spectrum of the α,α-diphenyl-β-picryl hydrazyl radical (DPPH) showed that the additional hyperfine structure is due solely to the protons of the α-phenyl groups. It may be explained by the interaction of the unpaired electron with the 2,4,6-protons of one of the two α-phenyl groups. The value obtained for the constant a of hyperfine coupling was 1.7 oersteds, and for ΔH_n 1.1 oersteds. The relative

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stability of related free radicals from the e.p.r. spectra are estimated by the method of J. A. Weil, K. V. Sane, J. M. Kinkade (J. Phys. Chem., 65, 710 (1961)) showed that I is chemically more stable than DPPH. Its stability may be due to steric factors reducing the possibility of chemical reactions with other substances. The values obtained from the e.p.r. spectra of I in finely crystalline state, which may contain solvent, were 15.7 ± 0.3 oersteds for ΔH at 295°K, 10.5 ± 0.3 oersteds at 77°K, 1.43 for r at 295°K, and 1.45 at 77°C ($r = <\Delta H^4>^{1/4} / <\Delta H^2>^{1/2}$). The g-tensor at 295°K is: $g_1 = 2.0039 \pm 0.0001$, $g_2 = 2.0051 \pm 0.0001$, and $g_3 < g_1$. The considerable difference between these values and the g-factor of DPPH suggests that the molecular structure of the free radical considerably affects the residual spin - orbital coupling and anisotropy of the g-factor. There are 3 figures and 1 table. The most important English-language references are: M. M. Chen, K. V. Sane et al., J. Phys. Chem., 65, 713 (1961); B. Kubo, K. Tomita, J. Phys. Soc. Japan, 9, 888 (1954); F. K. Kneübuhl, J. Chem. Phys., 33, 1074 (1960).

Study of the free radical ...

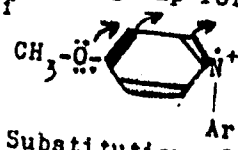
S/020/62/147/001/015/022
B106/B101

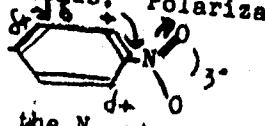
ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala Akademii nauk SSSR (Physicotechnical Institute of the Kazan' Branch of the Academy of Sciences USSR); Khimicheskiy institut im. A. Ye. Arbuzova Akademii nauk SSSR (Chemical Institute imeni A. Ye. Arbuzov of the Academy of Sciences USSR)

SUBMITTED: August 8, 1962

Card 4/4

increases the electron density of the unpaired electron on the N atom. Substitution of one methoxy group for one p-H atom of the α-phenyl group makes the existence of



more probable than in a non-substituted radical. Substitution of NO_2 for one p-H in the phenyl group of triphenyl methyl causes polarization of the electron clouds of the -C-C, $-\ddot{N}_{\beta}$-C-, and $-\ddot{N}_{\alpha}-\ddot{N}_{\beta}$- bonds. Polarization decreases in the following sequence: $-\ddot{N}_{\alpha} \rightarrow \ddot{N}_{\beta} \rightarrow C \rightarrow$  This explains that the density of the unpaired electron on the N_{α} atom revealed by the high $A_{\frac{1}{2}}/A_{\frac{1}{2}}$ values, is higher than in nonsubstituted radicals. There are 1 figure and 2 tables. The most important English-language references are: R. M. Deal, W. S. Koski, J. Chem. Phys., 31, 1158 (1959); N. W. Lord, S. M. Blinder, J. Chem. Phys., 34, 1693 (1961); Y. Deguchi, J. Chem. Phys., 32, 1584 (1960).

Card 3/4

IL'YASOV, A.V.

Determination of the vanadium content of crude oils and petroleum products by the electron paramagnetic resonance method. Khim.i tekh.topl.i masel 7 no.9:63-67 S '62. (MIRA 15:8)

1. Kazanskiy filial AN SSSR.
(Vanadium--Analysis) (Petroleum products--Spectra)
(Petroleum--Spectra)

ARBUZOV, A.Ye., akademik; VALITOVA, F.G.; IL'YASOV, A.V.; KOZYREV, B.M.; YABLOKOV, Yu.V.

Electron paramagnetic resonance study of the free α,α -diphenyl-β-pentaphenylcyclopentadienylhydrazyl radical. Dokl. AN SSSR 147 no.1:99-102 N '62. (MIRA 15:11)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR i Khimicheskiy institut im. A.Ye. Arbuzova AN SSSR.
(Radicals (Chemistry)—Spectra)

IKRINA, M.A.; IL'YASOV, A.V.; KOZYREV, B.M.; MATEVOSYAN, R.O.; RYZHMANOV, Yu.M.; YABLOKOV, Yu.V.

Superfine structure of electron paramagnetic resonance spectra of α,α-diphenyl-β-triphenylmethylhydrazyl and its derivatives. Dokl. AN SSSR 147 no.3:618-621 N '62. (MIRA 15:12)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR i Ural'skiy politekhnicheskiy institut im. S.M. Kirova. Predstavleno akademikom B.A. Arbuzovym.
(Hydrazine) (Radicals (Chemistry)—Spectra)

GARIF'YANOV, N.S.; IL'YASOV, A.V.; YABLOKOV, Yu.V.

Electron paramagnetic resonance in liquid and supercooled solutions of some free radicals. Dokl. AN SSSR 149 no.4:876-879 Ap '63. (MIRA 16:3)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR i Institut organicheskoy khimii AN SSSR, g. Kazan'. Predstavleno akademikom A.Ye.Arbuzovym.

(Radicals (Chemistry)--Spectra)

KOZYREV, B.M.; YABLOKOV, Yu.V.; MATEVOSYAN, R.O.; IKRINA, M.A.;
IL'YASOV, A.V.; RYZHMANOV, Yu.M.; STASHKOV, L.I.; SHATRUKOV, L.F.

Electron paramagnetic resonance in substituted diphenylpicrylhydrazyls.
Opt. i spektr. 15 no.5:625-635 N '63. (MIRA 16:12)

L 10831-63 EPF(c)/EWP(j)/EWT(l)/EWT(m)/BDS--AFFTC/ASD--Pr-4/Pc-4--RM/WW/JWF
ACCESSION NR: AP3000754 S/0020/63/150/003/0588/0591

AUTHOR: Il'yasov, A. V.; Garif'yanov, N. S.; Timerov, B. Kh.

TITLE: The nature of spin-lattice interaction in magnetically weak free radicals

SOURCE: AN SSSR. Doklady, v. 150, no. 3, 1963, 588-591

TOPIC TAGS: electron paramagnetic resonance, time of spin, lattice relaxation, Alpha, Alpha-diphenyl-Beta-picryl-hydrazyl

ABSTRACT: The electron paramagnetic resonance (e.p.r.) was studied in solutions of free radicals of Alpha, Alpha-diphenyl-Beta-picryl-hydrazyl and 2,2,6,6-tetramethylpentamethylene nitric oxide in methanol, ethanol, benzene, toluene and mixtures of these in glycerin and in water. A study of solid (supercooled) solutions (10 sup -2 to 10 sup -3 mol/l) indicated the time of spin lattice relaxation was independent of concentration and nature of solvent. The mechanism proposed by I. V. Aleksandrov and G. M. Zhidomirov (Zh. E. T. F., 41, 147, 1961) provides for relaxation time in solid solutions of free radicals. Experiments run at elevated temperatures indicated that collisions (brownian movement) in polar solvents (solvated radicals) were less effective on relaxation than in non-polar solvents (non-solvated radicals). Intensification of signal is not proportional to increase

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L 10831-63
ACCESSION NR: AP3000754

in concentration of radicals, but much greater. This supports proposal by McConnel (J. chem. phys. 25, 709, 1956) that isolated radicals have too long a relaxation time and are therefore saturated by small forces of the high frequency field and do not contribute to the e.p.r. signal. In these dilute solutions the mechanism is considerably dependent on the nature of the solvent. "The authors express thanks to B. M. Kozyrev for discussion of the results." Orig. art. has: 3 equations, 1 table, 1 figure.

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala Akademii nauk SSSR (Physical-Technical Institute of the Kazan Branch of the Academy of Sciences SSSR). Institut organicheskoy khimii Akademii nauk SSSR Kazan (Institute of Organic Chemistry, Academy of Sciences SSSR)

SUBMITTED: 06Feb63 DATE ACQD: 21Jun63 ENCL: 00

SUB CODE: 00 NO REF SOV: 006 OTHER: 004

ch/W
Card 2/2

VOZDVIZHENSKIY, G.S.; GUDIN, N.V.; SHAPNIK, M.S.; GARIF'YANOV, N.S.; IL'YASOV, A.V.

Electron paramagnetic resonance study of the electrode processes of copper complexes with organic amino derivatives. Zhur. fiz. khim. 38 no.6:1682-1685 Je '64. (MIRA 18:3)

1. Kazanskiy khimiko-tekhnologicheskiy institut imeni Kirova i Institut organicheskoy khimii AN SSSR, Kazan'.

[illegible], N.N.; [illegible]Y [illegible], .V.; KIT-YEV, Yu.P.

Electron paramagnetic resonance in nitrochlorbenzene [illegible] [illegible]-radicals. Zhur. struk. khim. 6 no.1:153-155 Ja-F '65. (MIRA 18:12)

1. Institut organicheskoy khimii AN SSSR, Kazan'. Submitted July 14, 1964.

VALITOVA, F.G.; IL'YASOV, A.V.; SOTNIKOVA, N.N.; BAIGIL'DINA, S.Yu.

Electron paramagnetic resonance study of electrochemically generated radicals of some hydrazines. Zhur.strukt.khim. 6 no.5:777-779 S-O '65. (MIRA 18:12)

1. Institut organicheskoy i fizicheskoy khimii AN SSSR, Kazan'.

VOZDVIZHENSKIY, G.S.; GUDIN, N.V.; SHAPNIK, M.S.; IL'YASOV, A.V.; GARIF'YANOV, N.S. (Kazan')

Electron paramagnetic resonance study of electrode processes in aqueous solutions of copper complexes. Zhur. fiz. khim. 39 no. 1: 64-67 Ja '65 (MIRA 19:1)

1. Institut organicheskoy khimii AN SSSR, Kazan'. Submitted January 10, 1964.

L 31461-66 EWT(m)/EWP(j)/T WW/JW/JWD/RM

ACC NR: AP6023114 SOURCE CODE: UR/0379/66/002/001/0142/0143

AUTHOR: Il'yasov, A. V.; Levin, Ya. A.; Sotnikova, N. N.; Valitova, F. G. 85 94 B

ORG: Institute of Organic and Physical Chemistry, AN SSSR, Kazan' (Institut organicheskoy i fizicheskoy khimii AN SSSR)

TITLE: Electrochemical generation of hydrazyl radicals

SOURCE: Teoreticheskaya i eksperimental'naya khimiya, v. 2, no. 1, 1966, 142-143

TOPIC TAGS: electrochemistry, free radical, hydrazine derivative, electrolytic cell, electron spectrum, electron paramagnetic resonance, redox reaction, resonator/RE-1301 resonator

ABSTRACT: It is known that organic free radicals of the type α, α'-diphenyl-β-picrylhydrazyl (DPPH) are obtained by treating the corresponding hydrazines with lead dioxide or other oxidizing agents. The authors studied the possibility of obtaining these radicals by electrochemical oxidation. An electrolytic cell containing platinum electrodes, as described previously, was placed directly into the RE-1301 radiospectrometer resonator. Measurements were made in acetonitrile, dimethylformamide, dioxane, alcohol, and aqueous-alcoholic solutions with a hydrazine concentration of about 10^{-2} M/liter. Tetramethyl-ammonium iodide and chloride were used as the supporting electrolyte. To improve the resolution of electron paramagnetic spectra, the

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solutions were degassed by the freezing method. The formation of hydrazyls in electrochemical oxidation of the original compounds can be depicted by the scheme:

$$Ph_2N\text{-}NH\text{-}R + OH^- \rightleftarrows Ph_2N - \bar{N} - R + H_2O,$$

$$Ph_2N - \bar{N} - R \rightleftarrows Ph_2N - \dot{N} - R + e.$$

Thus, the authors have shown that electrochemical oxidation as well as electrochemical reduction of compounds of the diphenylpicrylhydrazine type lead to the formation of free radicals, the properties and structure of which can be studied by the electron paramagnetic resonance method. [JPRS]

SUB CODE: 07 / SUBM DATE: 21Jun65 / ORIG REF: 006 / OTH REF: 004

A L 11826-66 EWT(1)/EWA(h)

ACC NR: AP6001569 SOURCE CODE: UR/0120/65/000/006/0058/0064

AUTHOR: Vasil'yev, V. D.; Gal'perin, L. N.; Il'yasov, A. Z.; Lemberg, I. Kh.; Udralov, Yu. I.

ORG: Physicotechnical Institute, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Gamma spectrometer with a p-i-n semiconductor detector 25

SOURCE: Pribory i tekhnika eksperimenta, no. 6, 1965, 58-64

TOPIC TAGS: gamma spectrometer, semiconductor device, particle detector, multichannel analyzer

ABSTRACT: The authors describe a gamma spectrometer with a p-i-n germanium detector cooled to the temperature of liquid nitrogen. The γ-spectrum is recorded by a 128-channel amplitude analyzer with an expander at the input. Line width of instrument noise is kept to 5 kev by a low-noise Chase preamplifier and carefully designed shielding. A block diagram of the unit is shown in Fig. 1. The detector is housed in the vacuum chamber of a Dewar flask and is kept at a temperature close to -190C by good thermal contact with the bottom of a vessel filled with liquid nitrogen. The signals to be studied are fed to the preamplifier and mixed at the input with reference pulses from the amplitude-controlled oscillator. The oscillator also generates code pulses in synchronization with the reference pulses which are fed through an hf cable to the input of the amplitude analyzer.

UDC: 621.382:539.16.07

Card 1/3

ACC NR: AP6001569

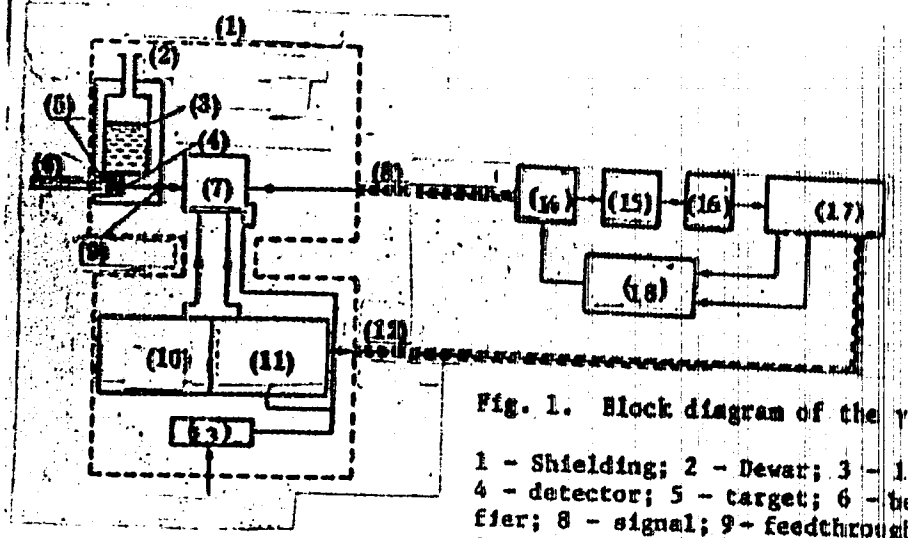


Fig. 1. Block diagram of the γ-spectrometer

1 - Shielding; 2 - Dewar; 3 - liquid nitrogen; 4 - detector; 5 - target; 6 - beam; 7 - preamplifier; 8 - signal; 9 - feedthrough insulator; 10, 11 - amplitude stabilized oscillator; 12 - code pulse; 13 - power supply; 14 - 6A3P control tube; 15 - UIS II amplifier; 16 - expander; 17 - 128-channel amplitude analyzer; 18 - amplification stabilization unit.

Card 2/3

ACC NR: AP6001569

3

The code pulses separate the reference pulses from the detector signals after amplification. These same code pulses prevent registration of the reference pulses when the detector signals are being recorded. Pulses from a second amplitude-controlled oscillator may also be fed to the preamplifier input for simulating detector signals when checking the operation of the device. From the output of the preamplifier, the signals being studied and the reference pulses are fed to the to the third grid of a 6A3P tube, which controls amplification during stabilization. Amplification control voltage from the stabilization unit is fed to the first grid of this tube. The signals are then amplified by a UIS-11 amplifier and fed through the expander to the amplitude analyzer. The various sections of the unit are described in detail, with diagrams of the cooling unit, low-noise preamplifier, expander, stabilization circuit, and output stage of the amplitude-controlled oscillator. Tests showed that continuous-duty stability of the analyzer is better than 0.15% with no apparent effects of interference from the cyclotron with which it is designed to be used. The authors thank S. M. Ryvkin, O. A. Matveyev, and N. B. Strokan for graciously supplying experimental detector models. Orig. art. has: 8 figures.

[OD]

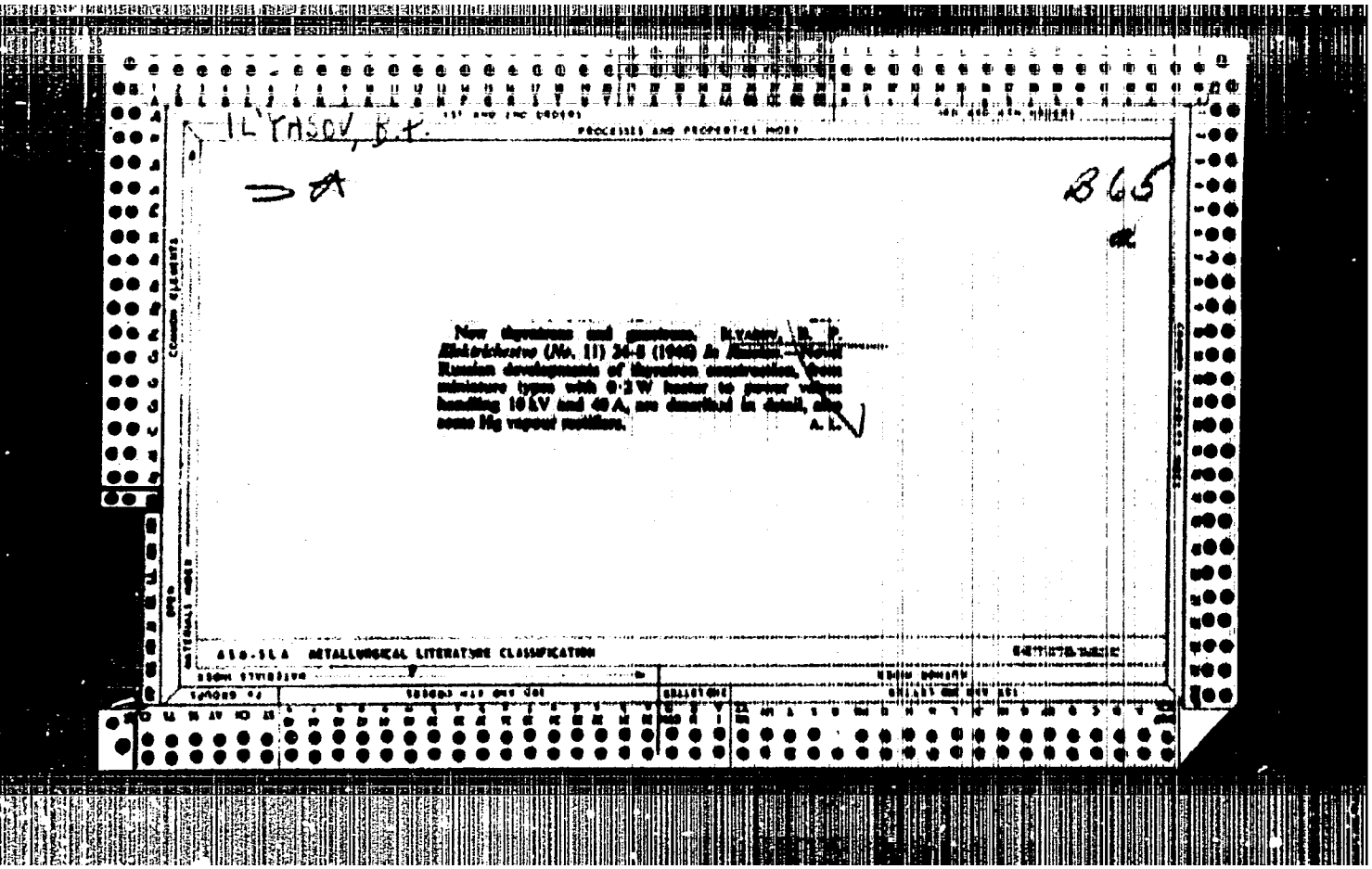
SUB CODE: 20, 09/ SUBM DATE: 17Oct64/ ORIG REF: 003/ OTH REF: 001/ ATD PRESS: 4171

HW

Card 3/3

IL'YASOV, B., inzh. (g. Ashkhabad)

Seismic resistance of sectional irrigation structures.
Gidr. i mel. 17 no.7:15-25 Jl '65. (MIRA 18:12)



IL'YASOV, G.S., Cand Geol Min Sci — (diss) "Geological structure and age of the Tubinskiy pyrite deposit in the southern Urals." Ufa, 1959, 14 pp (Acad Sci USSR. Ural Affiliate) 150 copies (KL, 35-59, 113)

IL'YASOV, G.S.

New data on the structure of the Tubinskiy chalcopyrite ore deposit.
Vop. geol. vost. okr. Rus. platf. i IUzh. Urala no.4:3-6 '59.
(MIRA 14:6)

(Tubinskiy region—Chalcopyrite)

IL'YASOV, G.S.

Composition of Tubinskiy gabbro-diorites and the possibility of the relation between their sulfide mineralisation and pyrite ore formation. Vop. geol. vost. okr. Rus. platf. i IUzh. Urala no.4:7-16 '59. (MIRA 14:6)

(Tubinskiy region--Gabbro)
(Tubinskiy region--Diorite)
(Tubinskiy region--Pyrites)

IL'YASOV, G.S.

Contact changes in rocks of the Tubinskiy group of pyrite deposits in the Southern Urals. Vop. geol. vost. okr. Rus. platf. i IUzh. Urala no.4:17-27 '59. (MIRA 14:6)

(Tubinskiy region--Pyrites)

IL'YASOV, G.S.

Sulfide mineralization in interbedding formations of the Tubinskiy pyrite deposit in the Southern Urals. Trudy Gor.-geol. inst. UFAN SSSR no.43:109-117 '59. (MIRA 13:11)
(Ural Mountains--Sulfides)

IL'YASOV, G.U.

Artificial germination of spring barley pollen. Izv. AN Kazakh. SSR. Ser. biol. nauk 3 no.4:44-48 Jl-Ag '65. (MIRA 18:11)

L 21966-66
ACC NR: AP6004830 (A) SOURCE CODE: UR/0404/65/000/004/0044/0048

AUTHOR: Il'yasov, G. V.

ORG: none

TITLE: Artificial germination of summer barley pollen

SOURCE: AN KazSSR. Izvestiya. Seriya biologicheskikh nauk, no. 4, 1965, 44-48

TOPIC TAGS: plant development, agriculture crop, plant reproduction

ABSTRACT: In 1964 summer barley pollen of the Nutans 187, Medikum 8955, and Pekotsius 143 varieties were artificially germinated under laboratory conditions in Van Tigem chambers according to Trankovskiy's method. 1 to 2% gelatin aqueous solutions with 5 to 45% glucose or saccharose added were used as nutritive media. In experiments where pollen was placed on media containing 5 to 10% glucose or saccharose, false germination was noted within 2 to 3 min. The intina pushed through the pore of the pollen grain forming a protuberance which filled up with granular protoplasm, and then the intina burst expelling the contents. With higher concentrations of glucose or saccharose, the same processes took place over a longer period of time. A 45% concentration

UDC: 581.145

Card 1/2

caused plasmolysis of the pollen grains. The experiments were repeated over 8 days with the same results. Another series of experiments was conducted according to methods described by S. Antony and H. V. Harlan (1920) in which the pollen was placed on the under side of a microscope slide cover instead of the glass slide and depression slides covered with large cover slides (32 x 40 mm) were used instead of Van Tigem chambers. The slides were placed on a window sill and observed 3, 5, and 10 min following exposure. After 5 min most of the viable pollen grains germinated and the rest remained unchanged throughout the experiment. Findings show that barley pollen is sensitive to insufficient moisture as well as excessive moisture. Under favorable conditions barley pollen germinates within the first 5 minutes. Exposure of pollen grains to dry air leads to change in form; however, with immediate transfer of the pollen to a moisture chamber, viability of pollen is preserved and it germinates normally. With more prolonged exposure to dry air, the pollen loses its germination capacity. S. Antony and H. V. Harlan's method is recommended for artificial germination of barley pollen. Orig. art. has: 4 figures.

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 001

L 23435-66 FSS-2/ENT(1)/EEC(k)-2/EWA(d) SCTB TT/DD/GW

ACC NR: AP6012837 SOURCE CODE: UR/0293/66/004/002/0320/0323

AUTHOR: Il'ina, G. V.; Kuznetsova, N. N.; Rydkiy, S. G.; Vyndtskiy, V. G.

ORG: none

TITLE: The effect of spaceflight factors on wheat seeds and plants grown from them

SOURCE: Kosmicheskiye issledovaniya, v. 4, no. 2, 1966, 320-323

TOPIC TAGS: space biology, radiation effect, germination, wheat, carbohydrate metabolism, protein metabolism, plant physiology

ABSTRACT: A study was made of the growth and development of wheat plants grown from seeds exposed to spaceflight factors on the Vostok-5 and Vostok-6 flights. Experimental and control batches of wheat seeds ("Krasnozerna" variety) were cultivated in fertilized soil under controlled humidity conditions. The energy of germination of seeds was determined and biochemical analysis was made of the plants in the following growth phases: seedling stage, tillering stage, and late flowering stage. A slight tendency to depression of germination was observed in experimental seeds (10% fewer sprouts on the first day of counting). Study of plant growth and accumulation of dry mass showed no difference between experimental and control groups. Biochemical analysis of plants showed insignificant variations in the content of individual sugar fractions, and analogous changes in soluble carbohydrate content in both experimental and control seedlings. The similarity of changes in nitrogen content and in individ-

Card 1/2 UDC: 581.057

L 23435-66

ACC NR: AP6012837

3

ual fractions of nitrogenous compounds in both groups also shows that spaceflight has no significant effect on biochemical processes in wheat plants. In addition, approximately the same amounts of starch and nitrogenous substances were observed in grains harvested from experimental and control plants. It was concluded that spaceflight factors do not influence the carbohydrate and protein metabolism of plants grown from exposed wheat seeds. It was also concluded that the amount of cosmic radiation included among the complex of Vostok-5 and Vostok-6 flight factors was insignificant for dry wheat seeds (dry wheat seeds are known to be more resistant to irradiation than moistened seeds). Orig. art. has: 4 tables. [JS]

SUB CODE: 06/ SUBM DATE: 13Apr64/ ORIG REF: 003/ ATD PRESS: 4235

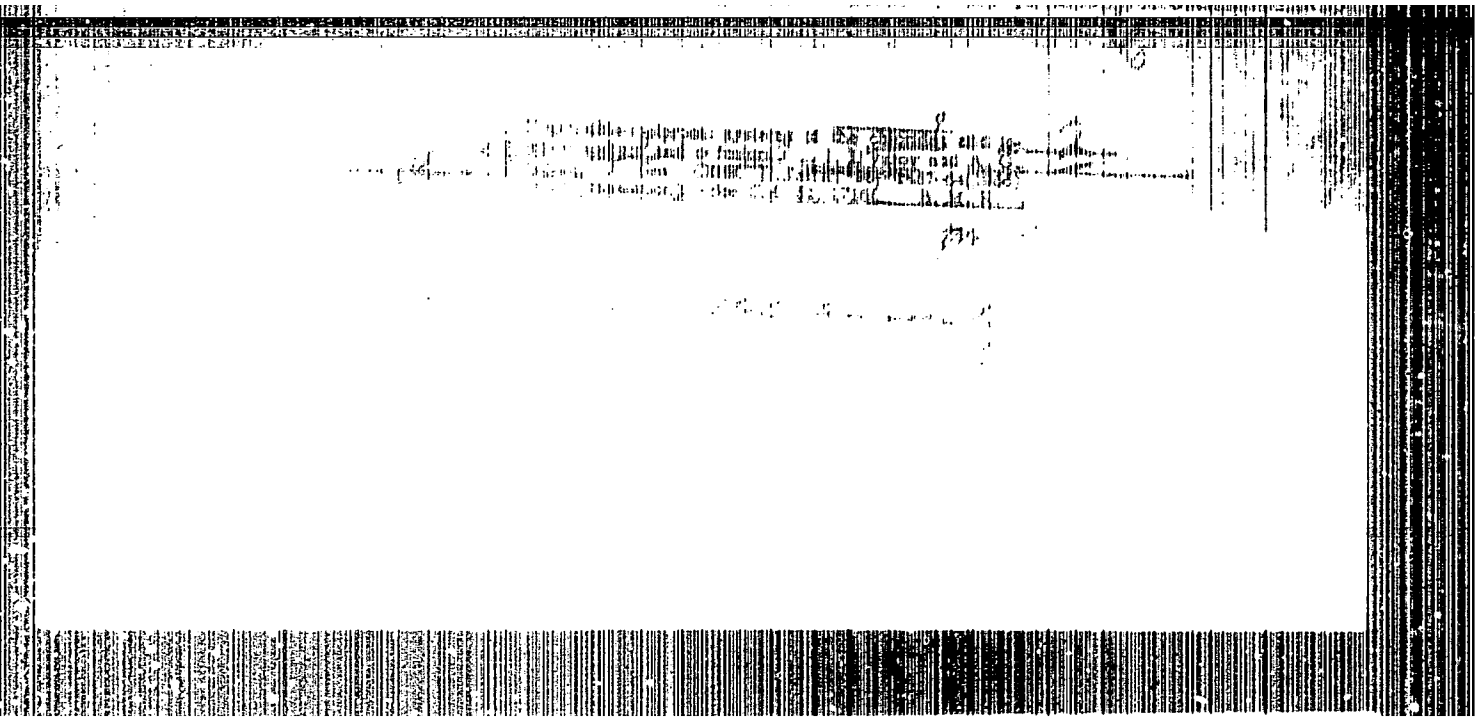
Card 2/2

IL'YASOV,I.I. --

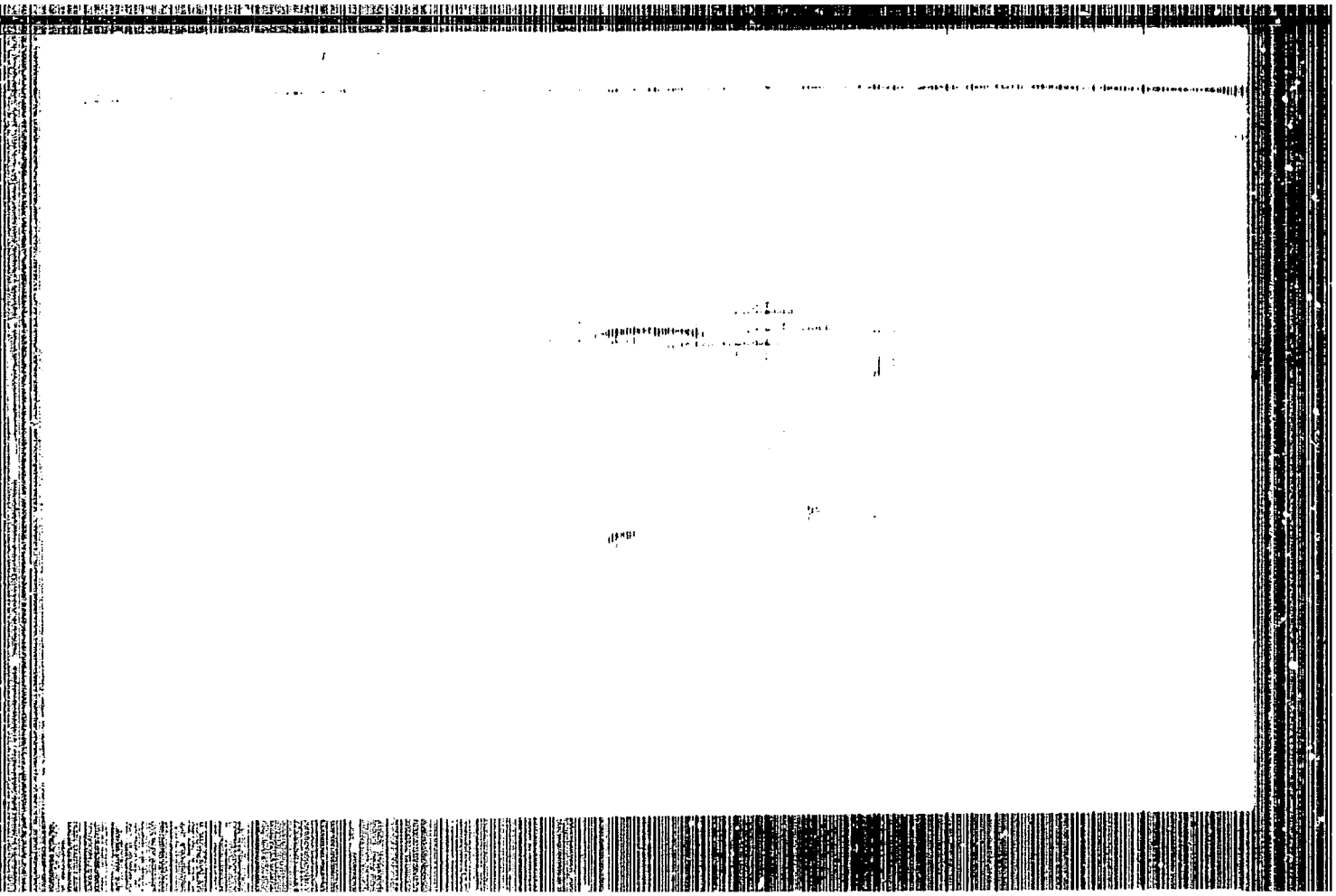
"Physicochemical Analysis of Chloride-Iodide Exchange in Fusions of Salts of Mono- and Divalent Metals." Cand Chem Sci, Novocherkassk Polytechnic Inst, Novocherkassk, 1954. (RZhKhim, No 20, Oct 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (10)

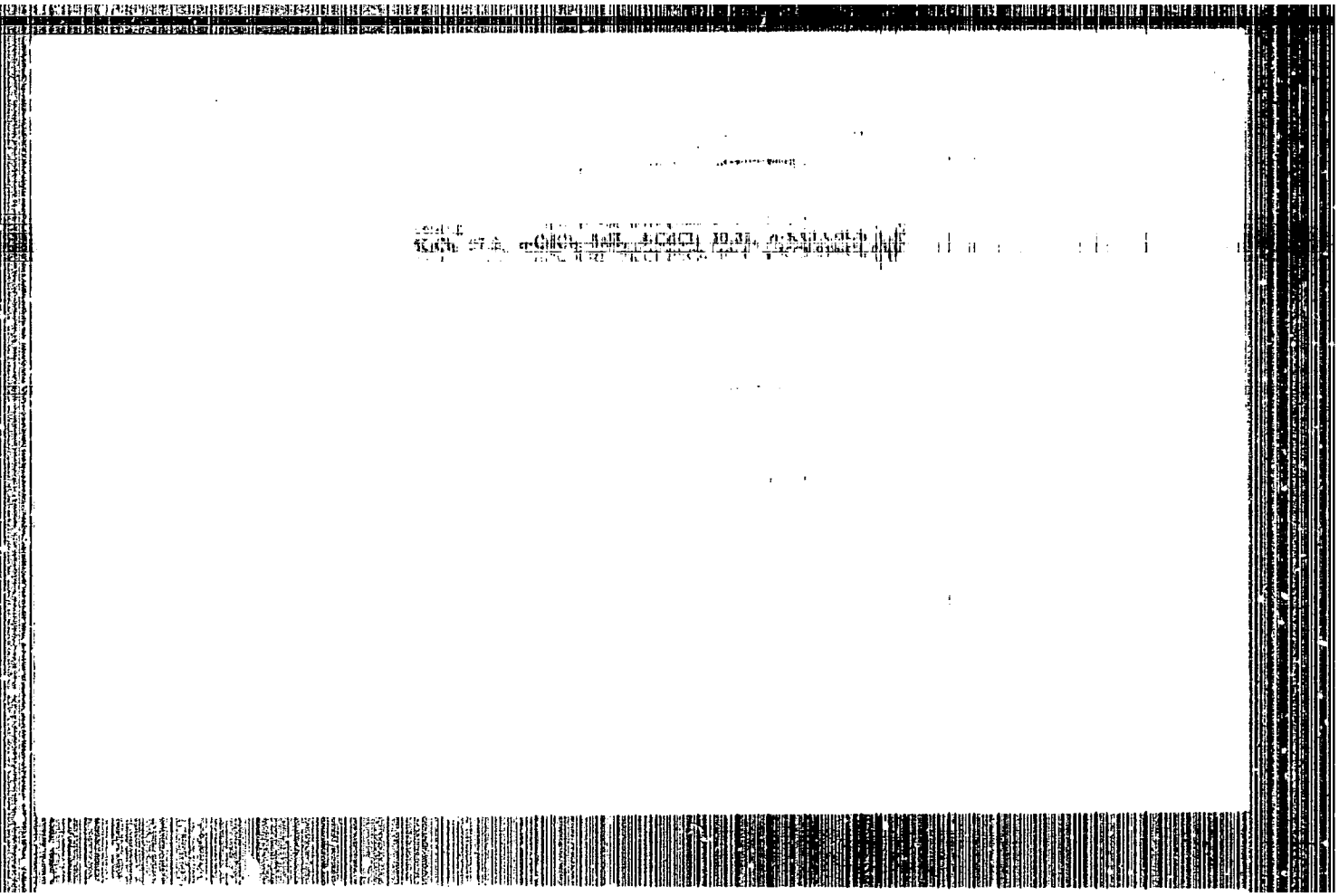
SO: Sum. No. 481 5 May 55

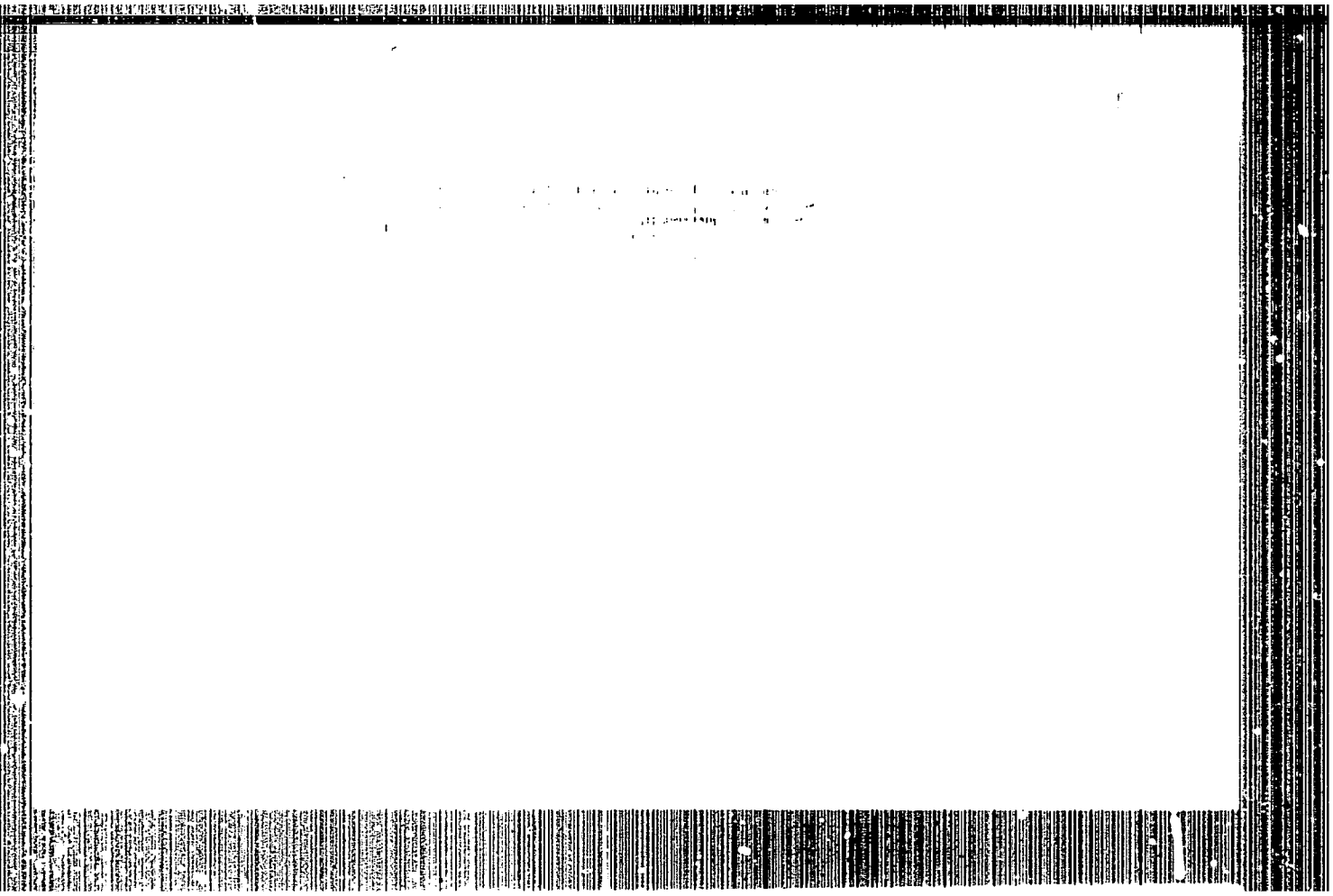


APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000618520013-5"



APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R000618520013-5"





Il'yasov, I. I.

"The Surface of Crystallization in the Constitutional Diagram of the Ternary System Composed of the Chlorides of Sodium, Potassium, and Cadmium, by I. I. Il'yasov, A. K. Bostandzhiyan, and A. G. Bergman, Rostov-na-Donu Engineering-Construction Institute, Zhurnal Neorganicheskoy Khimii, Vol 2, No 1, Jan 57, pp 172-178

The ternary system Na, K, Cd//Cl was subjected to investigation. The constitutional diagram which was obtained differed in some essential respects from that determined by non-USSR scientists. It was established that the stable compound $KCl.CdCl_2$ is formed, which melts without decomposition, and that the unstable compounds $KCl.CdCl_2$ and $NaCl.CdCl_2$, which melt with decomposition, are also formed.

Sum. 1305

I. LYASOV, I.I.

AUTHORS: Bergman, A.G. and Iliasov, I.I.

TITLE: Fusion Diagram for the Reciprocal System of Cadmium and Potassium Chlorides and Iodides. (Diagramma Plavkosti Vzaimnoy Sistemy iz Khloridov i Yodidov Kadmiya i Kaliya.)

PERIODICAL: "Zhurnal Neorganicheskoy Khimii" (Journal of Inorganic Chemistry Vol.11, No.2, pp.395-406. (U.S.S.R.) (Russian)

ABSTRACT: The system K, Cd ‖ Cl,I has clearly developed complex formation of the binary-system components and polymorphism. The crystallisation surface has a fairly complicated relief and consists of ten fields, meeting in six non-variant points.

Because of the decomposition of CdI_2 the investigation of the system reported was restricted to temperatures below 550°C. Carbon dioxide was continuously passed into the melt to minimise iodide decomposition.

Study of the liquidus diagram of the CdI_2 - K_2I_2 system showed the existence of the compound $CdI_2.2KI$ and $CdI_2.KI$, melting with decomposition at 223 and 272°C, respectively. The system $CdCl_2$ - CdI_2 has a eutectic at 360°C and 31% $CdCl_2$ and a homeomorphous transformation for $CdCl_2$ at 460°C. In the system $CdCl_2$ - K_2Cl_2 the compound $CdCl_2.4KCl$ was found, melting at 428°C without decomposition. Eleven different fields of crystallisation were found in the reciprocal system K, Cd ‖ Cl,I.

Card 1/2

Fusion Diagram for the Reciprocal System of Cadmium and Potassium Chlorides and Iodides. (Cont.)

The complex $CdCl_2.KCl$ (α, β) is stable and occupies an area of 14.72%. The compounds α and β $CdCl_2.4KCl$, $CdI_2.2KI$ and $CdI_2.KI$, which melt with decomposition, also retain their stability inside the system and have a common crystallisation curve with the complex $CdCl_2.KCl$ and component CdI_2. In the system complex-formation predominates over exchange reaction. The system is divided into four phase triangles by the three adiagonal triangulating sections: $CdCl_2.KCL - CdI_2$, $CdCl_2.KCl - CdI_2.2KI$ and $CdI_2.2KI - K_2CI_2$.

There are eight references, four of them Russian.

10 Figures, 7 Tables.

The work was carried out at the Engineering-Construction Institute, Rostov on Don.

Received 8 May, 1956.

Card 2/2

Category: USSR / Physical Chemistry
Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions. B-8

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29946

Author : Il'yasov I. I., Bergman A. G.
Inst : not given
Title : Irreversibly-Mutual System of Chlorides and Iodides of Sodium and Cadmium.

Orig Pub: Zh. obshch. khimii, 1956, 26, No 5, 1288-1296

Abstract: Study of the mutual system Na, Cd // Cl, I. The stable diagonal section is Na_2Cl_2 - CdI_2; the subordinate, adiagonal, triangulating secant is Na_2Cl_2 - CdI_2 . 2NaI. Positive conditional thermal effect of reaction, equal to 6.7 kcal/equivalent, indicates the irreversible nature of exchange reaction in the system. There is confirmed the formation of the previously ascertained compound $CdCl_2$. 2NaCl, which melts with decomposition; transition point at 433° and 37.5% Na_2Cl_2. There was ascertained a compound CdI_2 . 2NaI, melting with

Card : 1/2 -63-

IL'YASOV, I.I.; BOSTANDZHIYAN, A.K.

Ternary system consisting of sodium, cadmium, and lead iodides.
Zhur. neorg. khim. 2 no.1:167-171 Ja '57. (MLRA 10:4)
(Iodides) (Systems (Chemistry))

IL'YASOV, I. I.

BERGMAN, A.G.; IL'YASOV, I.I.

Fusibility diagram of the reciprocal system consisting of chlorides and iodides of cadmium and potassium. Zhur.neorg.khim. 2 no.2:395-406 F '57. (MLRA 10:5)

1.Rostovskiy-na-Donu inshenerno-stroitel'nyy institut.
(Systems (Chemistry)) (Cadmium halides)
(Potassium halides)

Il'yasov, I. I.

USSR/Physical Chemistry. Thermodynamics, Thermochemistry, Equilibria, Physical-Chemical Analysis, Phase Transitions. B-8

Abs Jour: Ref Zhur-Khimiya, No 5, 1957, 14696

Author : I. I. Il'yasov, A. G. Bergman
Inst :
Title : Reciprocal System of Potassium and Lead Chlorides and Iodides with Interior Heterocomplex

Orig Pub: Zh. obshch. khimii, 1956, 26, No 4, 981-991

Abstract: The fusibility graph of the reciprocal system K, Pb // Cl, I (I) was studied. A complex in the form of a binary compound (surmised composition $PbI_2 \cdot KCl$) was detected on the stable diagonal $KCl-PbI_2$ of the system I. The presence of the complex $PbCl_2 \cdot PbI_2$ fusing without decomposition was established in the system $PbCl_2-PbI_2$. The system I is divided into 8 phase triangles by the triangulating diagonal section $PbI_2-K_2Cl_2$ and 6 adiagonal secants. The liquidus area consists of 9 fields and one additional field dependent on the presence of PbI_2

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Card 2/2

Il'yasov, I. I.

IL'YASOV, I.I.; PONARDZHYAN, V.M.; ERMOMAN, A.G.

Fusibility in the system of sodium and thallium bromides and chlorides. Zhur.neorg.khim. 2 no.9:2154-2158 S '57. (MIRA 10:12)
(Fusion) (Systems (Chemistry))

IL'YASOV, I.I.

IL'YASOV, I.I.; BERGMAN, A.G.

Fusibility in the system of cadmium and lead chlorides and iodides. Zhur.neorg.khim. 2 no.9:2159-2167 S '57. (MIRA 10:12)
(Fusion) (Systems (Chemistry))

IL'YASOV, I.I.; SHCHEMELEVA, O.G.; BERGMAN, A.G.

Fusibility in the system of sodium and lead bromides and chlorides.
Zhur.neorg.khim. 2 no.9:2168-2173 S '57. (MIRA 10:12)
(Fusion) (Chemistry (Systems))

IL'YASOV, I.I.; ROZHKOVSKAYA, L.V.; BERGMAN, A.G.

Fusibility in the ternary mutual system of cadmium and lead chlorides and bromides. Zhur.neorg.khim. 2 no.9:2174-2177 S '57. (MIRA 10:12)

1.Rostovskiy-na-Donu Inshenerno-stroitel'nyy institut.
(Fusion) (Systems (Chemistry))

IL'YASOV, I.I.; BERGMAN, A.G.

Complex formation and exchange decomposition in the mutual system of thallium and lead chlorides and iodides. Zhur. neorg. khim. 2 no.12:2771-2781 D '57. (MIRA 11:2)

1. Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut, Kafedra khimii.
(Thallium chloride) (Thallium iodides)
(Lead chlorides) (Lead iodides)

SOV/78-4-4-33/44

5(4)

AUTHORS: Il'yasov, I. I., Shchemeleva, Z. G., Bergman, A. G.

TITLE: The Behavior of the Ternary System of Sodium, Cadmium and Lead Bromides in the Melting Process (Plavkost' troynoy sistemy iz bromidov natriya, kadmiya i svintsa)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 4, pp 906-908 (USSR)

ABSTRACT: The system Na, Cd, Pb ‖ Br was investigated by a visual polythermal method. The binary systems Na_2Br_2-$PbBr_2$, Na_2Br_2-$CdBr_2$ and $CdBr_2$-$PbBr_2$ were checked and completed. Six internal sections of the ternary system were investigated; the results are contained in figure 1 and table 2. The melting diagram of this system consists of three main crystallization ranges. A range with α- and β-homeomorphous differences appears within the range of Na_2Br_2. In the system Na_2Br_2-$PbBr_2$ a eutectic occurs at 324° with 9.7% Na_2Br_2. The transition point of the α- and β-homeomorphous form is located at 380° with 17% Na_2Br_2. The system $CdBr_2$-$PbBr_2$ forms a eutectic at 340° with

Card 1/2

The Behavior of the Ternary System of Sodium, Cadmium and Lead Bromides in the Melting Process

15% $CdBr_2$. The melting points within the binary systems $PbBr_2$-Na_2Br_2 and $PbBr_2$-$CdBr_2$ are given in a table. There are 2 figures, 2 tables, and 8 references, 7 of which are Soviet.

SUBMITTED: December 26, 1957

SOV/78-4-4-34/44

5(4)
AUTHORS: Il'yasov, I. I., Mirsoyapov, V. N., Korobkov, Yu. V.

TITLE: The Ternary System of Sodium, Potassium and Cadmium Bromides (Troynaya sistema iz bromidov natriya, kaliya i kadmiya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 4, pp 909-912 (USSR)

ABSTRACT: The system Na, K, Cd ‖ Br was investigated by a visual polythermal method. The binary systems Na_2Br_2-K_2Br_2, Na_2Br_2-$CdBr_2$ and K_2Br_2-$CdBr_2$ were checked, and it was found that in the system K_2Br_2-$CdBr_2$ there is only one compound with the composition $KBr.2CdBr_2$. This compound melts incongruently at 360°. Seven internal sections of the ternary system were investigated. The crystallization surface of this system consists of the ranges $CdBr_2$, $KBr.CdBr_2$ and the solid solutions [Na,K]Br, which decompose inside the system above 550°. The internal sections and the melting diagram of the system Na, K, Cd ‖ Br are given in figures 2 and 3. The melting points within the

Card 1/2

The Ternary System of Sodium, Potassium and Cadmium Bromides

system $CdBr_2$-K_2Br_2 are contained in a table; the seven internal sections under investigation are characterized in a further table. There are 3 figures, 2 tables, and 6 references, 5 of which are Soviet.

SUBMITTED: December 30, 1957

SOV/78-4-4-35/44

5(4)

AUTHORS: Il'yasov, I. I., Bergman, A. G.

TITLE: Complex Formation in the Reciprocal System of Chlorides and Iodides of Cadmium and Thallium (Kompleksoobrazovaniye po vzaimnoy sisteme iz khloridov i yodidov kadmiya i talliya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 4, pp 913-919 (USSR)

ABSTRACT: The reciprocal system Tl, Cd || Cl, J was investigated by a visual polythermal method. First, the binary systems $CdCl_2$-CdJ_2, CdJ_2-Tl_2J_2, $CdCl_2$-Tl_2Cl_2 and Tl_2J_2-Tl_2Cl_2 were investigated. In the system $CdCl_2$-Tl_2Cl_2 the compound $CdCl_2$.TlCl with the melting point 430° is formed. The unstable diagonal sections Tl_2Cl_2-CdJ_2 and $CdCl_2$-Tl_2J_2 were investigated; the results are given in figure 2. The triangulating nondiagonal sections from the top of the complex $CdCl_2$.TlCl are given in figure 3. The section $CdCl_2$.TlCl-Tl_2J_2 consists of three branches; α- and β-$CdCl_2$.TlCl and Tl_2J_2. The section $CdCl_2$.TlCl-CdJ_2.4TlJ is

Card 1/3

Complex Formation in the Reciprocal System of Chlorides and Iodides of Cadmium and Thallium

characterized by polymorphous transformation of the branch $CdCl_2.TlCl$ at 372° and 21.5% ($CdJ_2.4TlJ$). The following branches were found in the section $CdCl_2.TlCl$-CdJ_2: α-$CdCl_2.TlCl$, β-$CdCl_2.TlCl$, $CdCl_2$ and CdJ_2, which intersect at 372° and 21.5% CdJ_2, 330° and 33% CdJ_2, and 320° and 69% CdJ_2. Apart from the diagonal and triangulating sections thirteen internal sections were investigated, the melting diagrams of which are given in figures 4, 5 and 6. The crystallization surface of the system covers six crystallization ranges. The nature of the melting diagram shows that complex formation prevails in the system Tl, Cd ‖ Cl, J. A characterization of the binary system CdJ_2-Tl_2J_2 and of the diagonal sections Tl_2Cl_2-CdJ_2 and $CdCl_2$-Tl_2J_2 by the melting points is given in a table; the three eutectic points and the point of transition of the system Cd, Tl ‖ Cl, J are contained in another table. There are 6 figures, 2 tables, and 12 references, 8 of which are Soviet.

SOV/78-4-4-35/44

Complex Formation in the Reciprocal System of Chlorides and Iodides of Cadmium and Thallium

ASSOCIATION: Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut (Rostov-na-Donu Institute of Construction Engineering)

SUBMITTED: January 15, 1959

Card 3/3

5(2)

SOV/76-4-9-25/44

AUTHORS: Bostandzhiyan, A. K., Il'yasov, I. I., Bergman, A. G.

TITLE: The Fusibility in a System of Chlorides and Bromides of Potassium and Lead

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 9, pp 2079-20[illegible] (USSR)

ABSTRACT: Before the combined system mentioned in the title is dealt with the melting curves of the binary systems K_2Cl_2 - $PbCl_2$, K_2Br_2 - $PbBr_2$ (in accordance with the data given by S. D. Gromakov, reference 2), K_2Cl_2 - K_2Br_2 and $PbCl_2$ - $PbBr_2$ (in contrast with the data given by L. I. Favorskiy, reference 5) are given in figure 1. In the combined system two diagonal and four interior sections were investigated (Table 1, Figs 2-4). In the four crystallization ranges $K[Cl,Br]$, $2K[Cl,Br].Pb[Cl,Br]_2$, $K[Cl,Br].2Pb[Cl,Br]_2$ and $Pb[Cl,Br]_2$ are formed. The system under examination belongs to the group of mutual systems with

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complex formations of the belt type in which all components and compounds of the sides opposite one another form stable continuous solid solutions with each other. There are 4 figures, 1 table, and 9 references, 7 of which are Soviet.

SUBMITTED: April 30, 1958

5(2)
AUTHORS: Il'yasov, I. I., Bergman, A. G. SOV/78-4-9-26/44

TITLE: The Fusibility in the Ternary System of Iodides of Sodium, Potassium, and Lead

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 9, pp 2003-20[illegible] (USSR)

ABSTRACT: After a short characterization of the binary systems $Na_2J_2 - K_2J_2$, $Na_2J_2 - PbJ_2$, and $K_2J_2 - PbJ_2$ (Fig 1) a report is made on the investigation of the ternary system mentioned in the title (Fig 2, Tables 1, 2). Within this system an interior field can be clearly distinguished which borders on all the other components and the double compound $KJPbJ_2$, melts incongruently, and has approximately the following composition: $KJ.2NaJ.2PbJ_2$. It was found that the solid solutions of NaJ and KJ within this system decompose already below 500°. The four nonvariant points are given in table 3. There are 4 figures, 3 tables, and 7 Soviet references.

SUBMITTED: April 30, 1958
Card 1/1

IL'YASOV, I.I.; DIONIS'YEV, S.D.; BERGMAN, A.G.

Fusibility diagram of a ternary system of potassium bromide, cadmium bromide, and lead bromide. Zhur. neorg. khim. 5 no.3:664-667 Mr '60. (MIRA 14:6)

1. Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut.
(Potassium bromide)
(Lead bromide)
(Cadmium bromide)

S/078/60/005/05/24/037
B004/B016

AUTHORS: Dionis'yev, S. D., Il'yasov, I. I., Bergman, A. G.

TITLE: The Melting-point Diagram in the Ternary System of Potassium-, Thallium-, and Lead Bromide

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 5, pp. 1135 - 1138

TEXT: After giving a short survey of the binary systems K_2Br_2 - Tl_2Br_2, K_2Br_2 - $PbBr_2$, and Tl_2Br_2 - $PbBr_2$, and referring to the papers by A.P.Rostkovskiy (Ref. 2), and L. I. Pavorskiy (Ref. 5), the authors report on their investigation of 14 sections (Tables 1,2, Fig. 1) of the ternary system. The resultant melting-point diagram is shown in Fig. 2, the crystallization scheme in Fig. 3. The melting-point diagram has a complicated structure owing to the formation of limited solid solutions between KBr and TlBr and stable, continuous, solid solutions between $TlBr.2PbBr_2$ and $KBr.2PbBr_2$. The phase diagram is divided into 5 phase triangles with 3 invariant points (Table 3). There are 3 figures, 3 tables, and 6 references, 5 of which are Soviet.

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The Melting-point Diagram in the Ternary System of Potassium-, Thallium-, and Lead Bromide

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B004/B016

SUBMITTED: February 10, 1959

Card 2/2

IL'YASOV, I.I.; SHCHEMELEVA, G.G.; BERGMAN, A.G.

Fusibility diagram of a ternary system consisting of sodium, potassium, and lead bromides. Zhur.neorg.khim. 5 no.6:1254-1256 Je '60. (MIRA 13:7)

1. Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut.
(Sodium bromide)
(Potassium bromide)
(Lead bromide)

5.4110

77851
SOV/79-30-2-2/78

AUTHORS: Il'yasov, I. I., Bergman, A. G.

TITLE: Physico-Chemical Analysis of Systems Containing Salts of Organic Acids. I. Mutual System Consisting of Chlorides and Acetates of Sodium and Potassium

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 355-358 (USSR)

ABSTRACT: The phase diagrams for the binary systems in the investigated mutually interacting system $Na^+, K^+ \| Cl^-, CH_3COO^-$ are shown in Fig. 1 (the crystallization study was performed in test tubes surrounded by a sleeve heater).

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Physico-Chemical Analysis of Systems Containing Salts of Organic Acids. I

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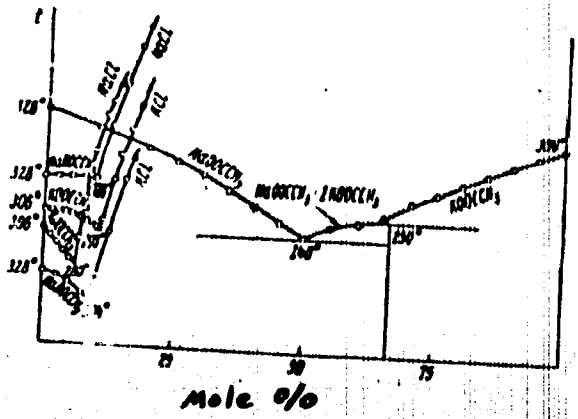

Fig. 1. Lateral binary systems and the diagonal sections.

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It can be seen that sodium and potassium acetates form an incongruently melting compound, $NaOOCCH_3 \cdot 2KOOCCH_3$ with a transition point at 255° and 65% $KOOCCH_3$ (eutectic is at 240° and 50% $KOOCCH_3$); the system $NaOOCCH_3$ - NaCl has a eutectic point at 328° and 10% NaCl; eutectic of the system $KOOCCH_3$ - KCl is at 293° and 10.5% KCl. System NaCl - KCl was studied earlier (Bergman, A. G., Nikonova, I. N., Zhur. obshchey khim., 12, 460 (1942)). The crystallization surface of the mutually interacting system is shown in Fig. 2. The system $Na, K \parallel Cl, CH_3COO$ is a reversibly-mutual system with a triangulating diagonal KCl - $NaOOCCH_3$. The crystallization fields meet in three nonvariant points (see Table 3).

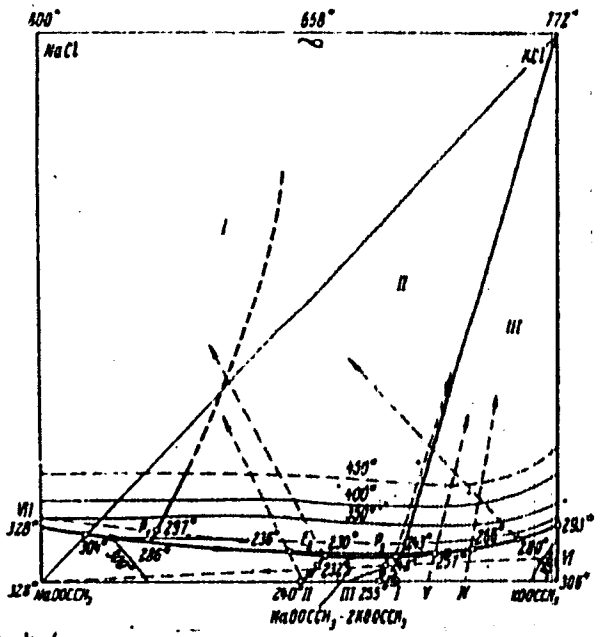

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Fig. 2. Diagram of fusibility of the mutual system, arrangement of inner cross sections and triangulation.

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Physico-Chemical Analysis of Systems Containing Salts of Organic Acids. I

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Key to Table 3: (1) Point; (2) temperature; (3) composition (in mole %); (4) equilibrium phases.

(1)	(2)	(3) NaCl	(3) $KOOCCH_3$	(3) $NaOOCCH_3$	(4)
P_1	280°	7.5	22.0	70.5	NaCl—KCl—$NaOOCCH_3$,
P_2	230	5.0	55.0	40.0	KCl—$NaOOCCH_3$—$NaOOCCH_3 \cdot 2KOOCCH_3$,
P_3	243	5.0	66.0	29.0	$NaOOCCH_3 \cdot 2KOOCCH_3$—KCl—$KOOCCH_3$,

There are 2 figures; 3 tables; and 13 Soviet references.

ASSOCIATION: Rostov-on-Don Civil-Engineering Institute (Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut)

SUBMITTED: January 29, 1959

Card 5/5

IL'YASOV, I.I.; SHCHEMELEVA, G.G.; BERGMAN, A.G.

Fusibility of a ternary system of sodium, potassium, and thallium iodides. Zhur. neorg. khim. 6 no.3:699-701 Mr '61. (MIRA 14:3)

1. Rostovskiy-na-Donu filial Vsesoyuznogo zaochnogo instituta pishchevoy promyshlennosti.
(Sodium iodide) (Potassium iodide)(Thallium iodide)

IL'YASOV, I.I.; DIONIS'YEV, S.D.; BERGMAN, A.G.

Fusibility diagram of the ternary system consisting of sodium, thallium, and lead bromides. Zhur.neorg.khim. 6 no.6:1389-1391 Je '61. (MIRA 14:11)

1. Rostovskiy-na-Donu filial Vsesoyuznogo zaochnogo instituta pishchevoy promyshlennosti.
(Systems (Chemistry)) (Bromides)

IL'YASOV, I.I.; BERGMAN, A.G.

Interaction in the ternary systems consisting of cadmium and lead chlorides, bromides, and iodides. Zhur.neorg.khim. 6 no.9: 2142-2147 S '61. (MIRA 14:9)

1. Rostovskiy-na-Donu filial zaochnogo instituta sovetskoy torgovli.

(Systems (Chemistry)) (Halides)

IL'YASOV, I.I.; BERGMAN, A.G.

Physicochemical analysis of systems containing salts of organic acids. Part 3: Reciprocal system consisting of potassium and sodium bromides and acetates. Zhur. ob. khim. 31 no.2:368-370 F '61. (MIRA 14:2)

(Systems (Chemistry))

IL'YASOV, I.I.; BERGMAN, A.G.

Fusibility curve of the ternary system consisting of cadmium, sodium, and lead chlorides. Zhur.neorg.khim. 7 no.2:356-359 F '62. (MIRA 15:3)
(Chlorides) (Melting points) (Systems (Chemistry))

IL'YASOV, I.I.; CHAURSKIY, N.I.; BERGMAN, A.G.; DIONIS'YEV, S.D.

Melting diagram of the reciprocal system consisting of sodium and cadmium bromides and iodides. Zhur.neorg.khim. 7 no.3:618-620 Mr '62. (MIRA 15:3)

(Halides) (Systems (Chemistry))

IL'YASOV, I.I.; DIONIS'YEV, S.D.; BERGMAN, A.G.

Melting diagram of the ternary reciprocal system of cadmium and thallium bromides and iodides. Zhur.neorg.khim. 7 no.3:625-627 Mr '62. (MIRA 15:3)
(Halides) (Systems (Chemistry))

S/078/62/007/003/016/019
B110/B138

11.4100

AUTHORS: Il'yasov, I. I., Bergman, A. G.

TITLE: Fusibility of ternary systems of sodium, potassium, and cesium chlorides

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 3, 1962, 695 - 696

TEXT: According to its position in the periodic system the properties and salt structure of cesium differ more widely from those of sodium than potassium (to whose subgroup it belongs). The great difference in ionic radii (K = 1.33 Å, Cs = 1.65 Å), does not, however, prevent the formation of continuous solid solutions. The authors used their own visual-polythermal method (Zh. obshch. khimii, 26, 981 (1956)). Data are expressed in moles per cent. As to the NaCl-CsCl binary systems, the authors' data on the eutectic at 34% NaCl and 493°C coincide with those of S. F. Zhemchuzhnyy, F. Rambakh (ZhRFKhO, 41, 1785 (1909)), but the fusibility curves are somewhat more curved. In CsCl-KCl, a continuous series of solid solutions was found with a minimum at 606°C and 36% KCl. As to NaCl-KCl, A. G. Bergman and N. M. Selivanova (Izv. Sektora fiz.-khim.

Card 1/2

IL'YASOV, I.I.; BERGMAN, A.G.

Melting diagram of the reciprocal system consisting of potassium and cadmium chlorides and bromides. Zhur. neorg. khim. 7 no.8:1970-1973 Ag '62. (MIRA 16:6)

(Systems(Chemistry))

IL'YASOV, I.I.

Ternary system consisting of sodium, cesium, and cadmium chlorides. Zhur.neorg.khim. 7 no.11:2604-2605 N '62. (MIRA 15:12)

1. Rostovskiy-na-Donu filial zaochnogo instituta sovetskoy torgovli.

(Alkali metal chlorides)
(Cadmium chloride)

IL'YASOV, I.I.

Salts of organic acids. Part 4: Trinary system of sodium, potassium, and cadmium acetates. Zhur.ob.khim. 32 no.2:347-349 F '62. (MIRA 15:2)

1. Rostovskiy-na-Donu Filial zaochnogo instituta sovetskoy torgovli.
(Sodium acetate) (Potassium acetate) (Cadmium acetate)

IL'YASOV, I.I.

Melting diagram of the ternary system Na, Cs, Pb Cl. Zhur.neorg.-khim. 8 no.5:1230-1232 My '63. (MIRA 16:5)
(Alkali metal chlorides) (Lead chlorides) (Melting points)

IL'YASOV, I.I.

Ternary reciprocal system consisting of chlorides and bromides of cesium and cadmium. Zhur. neorg. khim. 9 no.6:1411-1415 Je '63 (MIRA 17:8)

1. Rostovskiy filial Zaochnogo instituta sovetskoy torgovli.

IL'YASOV, I.I.; BERGMAN, A.G.

Ternary reciprocal systems of the halides of sodium, potassium, and cadmium. Zhur. neorg. khim. 9 no.6: 1416-1422 Je '63 (MIRA 17:8)

1. Rostovskiy filial zaochnogo instituta sovetskoy torgovli.

S/079/63/033/001/002/023
D205/D307

AUTHORS: Il'yasov, I. I., Palobekov, A. G. and Bergman, A. G.

TITLE: Interactions in the ternary system urea-phenol-benzoic acid

PERIODICAL: Zhurnal obshchey khimii, v. 33, no. 1, 1963, 19-22

TEXT: The present work was undertaken in an effort to study systematically the interactions of urea with organic compounds. Pure materials and visual-polythermal methods were used. Melting point measurements in the binary systems phenol-urea (I), phenol-benzoic acid (II), and urea-benzoic acid (III) showed the existence of: I - a eutectic at 35°C and 6.5 mol% urea, and a transition point at 60.6°C and 33.0% $CO(NH)_2$, corresponding to a compound $CO(NH_2)_2 \cdot 2C_6H_5OH$; II - a eutectic at 28°C and 14% C_6H_5COOH; III - a congruent melting compound $3CO(NH_2)_2 \cdot C_6H_5COOH$, separating from the liquid phase at 110°C, and 2 eutectic points at 75.5°C/49.5% urea

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